State of Connecticut
Department of Public Health
Drinking Water Section

Guidelines for Recipients of Drinking Water State Revolving Funds for the Emergency Power Generator Program

INTRODUCTION: The Department of Public Health (DPH) Drinking Water Section (DWS) has developed a streamlined purchase process under the Drinking Water State Revolving Fund (DWSRF) for public water systems to purchase and install emergency power generator systems. Three significant storms that hit Connecticut in August and October of 2011 (Irene & Alfred) and in February of 2013 (Nemo) left significant portions of the state without power for prolonged periods of time. Power outages were experienced by many small public water systems during these storms leaving many residents without water service until normal street power was restored. The DPH has decided to continue to offer an Emergency Power Generator Program within the DWSRF during the State Fiscal Year 2014 (July 1, 2013 – June 30-2015) funding period to assist public water systems in acquiring back-up electrical power systems to operate their drinking water facilities during a power outage. This program will subsidize a percentage of the total project cost and the remaining balance will be provided in the form of a long-term low interest DWSRF loan (see section 1.F). These guidelines are intended to outline the requirements of this Program as well as provide useful information to public water systems utilizing emergency generator systems.

For the purposes of these guidelines and this program, the term "emergency power generator system" or "generator system" refers to an emergency back-up electrical power system for a public water system drinking water infrastructure facility and may be comprised of a generator, generator mounting pad, transfer switch, associated electrical components to make connections to existing electrical control panels, fuel storage tank(s) and associated plumbing components to connect fuel lines to the generator.

You should read these guidelines and provide them to the engineer or contractor who will be designing your generator system to ensure that all of the applicable Section 1 requirements will be included in your design.

SECTION 1: PROGRAM REQUIREMENTS

A. Minimum Requirements for All Generator Systems:

- The generator system shall be minimally sized to provide sufficient power to supply the maximum starting power demands and the running demands of the water system facility it will be operating during an emergency. The generator system may also provide power to appurtenances that can be directly related to the public water system's ability to operate and maintain the water system (i.e. pump house lighting, water treatment systems, water system related telemetry, circuitry, etc.). Other factors allowed in generator sizing can include generator operating efficiency and electrical demands of future water system electrical components that are currently planned or may reasonably be expected to be installed over the useful service life of the generator (non-growth related components).

- The generator system shall be provided with:
  1. An automatic transfer switch for stationary standby generators capable of automatically starting the generator and providing power to water system electrical components during a loss of street power (***"Smart" switches are not allowed as they may result in removing power to a critical water system component during periods of high electrical demand***), or;

2. Manual transfer switch (for portable generators only) with a written **Emergency Generator Action Plan** that demonstrates the public water system's capacity to provide an uninterrupted water supply to their customers during a loss of street power including but not limited to:

    a. Response plan describing how the power loss will be identified by the public water system and who will be responsible to place the generator system into service before water system customers lose water pressure.

    b. Refueling plan to ensure the generator will be provided with sufficient fuel to operate the water system facility for at least 7 consecutive days without street power.

    c. The name and phone number of the individual(s) or business (es) that will provide generator system servicing should it fail to operate during an emergency loss of power.

    d. The name and phone number of the electric utility company to which you report a loss of power and who will be responsible to report the PWS's power outage and maintain dialogue with the utility company until power is restored.

    e. Maintenance plan providing a schedule of generator system maintenance activities, including at least monthly operation of the generator under electrical loads equivalent to what the generator will experience operating the water system facility during a loss of street power. The plan shall also include record keeping procedures for generator maintenance activities and the location of where those records will be maintained. See section 2.C.

- The PWS and their contractors shall ensure that the materials and installation of the generator system complies with all local, state and federal building codes, permitting requirements including but not limited to: local building permits and potential emissions permitting from the Connecticut Department of Energy and Environmental Protection, and DPH Water Company Land permitting.

- The generator must be located on land owned by the PWS, or evidence of an existing easement or right-of-way shall be provided.

- A municipality must receive the Commissioner's prior written approval for the use of the PWS staff resources (i.e. force account) for any planning, design work or construction work that will be paid for with DWSRF funding. The Commissioner may approve the force account method upon the PWS's demonstration that it possesses the necessary competence required to accomplish such work and that the work can be accomplished more economically by use of the force account method, or emergency circumstances dictate its use.

- The installation of a generator system is typically considered "service work" rather than a "construction" and is not subject to federal prevailing wage rates as required for construction contracts under the federal Davis-Bacon and Related Acts. However, if construction contracts exceeding $2,000 are necessary for the installation of a generator system then federal prevailing wage rates for construction workers would be required. Minor construction activities directly related to a service contract such as minor excavation for the installation of propane fuel lines and electrical conduit or would be considered incidental to the service contract and not subject to prevailing wage rates. Any significant construction related activities necessary for the generator system installation that will exceed $2,000 must be discussed with the Drinking Water Section in advance of getting price quotes from your contractor to determine if prevailing wage rates would be required.

NOT ALLOWED:

- The DWSRF Program cannot finance non-drinking water infrastructure projects. As a result, if your generator system will also be providing power to non-drinking water related equipment, then the DWSRF program can only provide financing for the portion of the generator system that is necessary to operate the drinking water system/facility.

  For example, if your generator system will be used to provide emergency power to a school or nursing home during a power outage then you will need to determine your power needs for water system components and your power needs for non-water system components separately. The DWSRF may be used to provide financing only for the costs associated with providing power to drinking water components and/or other equipment that is directly related to the provision of a safe and adequate water supply to customers during a loss of normal utility power.

  Example: If your generator will provide emergency power for a school and your drinking water related electrical components require 40 kilowatts (kW) of power and the rest of the school's electrical components require 40 kW of power then you will need an 80 kW generator to operate both. In this example, the percentage of your 80 kW generator system cost that is eligible for DWSRF financing would be calculated as follows:

  $$(40 \text{ kW} \div 80 \text{ kW}) \times 100 = 50\%$$

  If the 80 kW generator system costs $50,000 then the DWSRF would finance 50% of this cost or:

  $$\$50{,}000 \times 0.5 = \$25{,}000$$

  The PWS will be responsible for paying for the remaining $25,000 or financing it through other means. A safety factor to install a larger generator than required to provide power to the water system components may be permitted, provided that the oversizing is justified (for future water system needs, overload protection, operational efficiency and reliability, etc.).

B. Additional Requirements for Liquid Fueled Generators Only (Diesel, Gasoline):

- **NOTE:** Liquid fueled generators ***are not recommended*** for installation in designated watershed areas or near drinking water wells and alternative natural gas or propane generators should always be considered.

- Liquid fueled generators and their associated fuel lines and fuel storage tanks shall be located as far removed from sources of public drinking water wells as practical and comply with the minimum separation distances shown in Table 1. The required separation distance is dependent on the withdrawal rate of the well pump installed for the water well.

Table 1

Minimum Separation Distances between Public Water Supply Wells and Liquid Fueled Generators, Liquid Fuel Lines and Liquid Fuel Storage Tanks

Well Pump Withdrawal Rate (in gallons per minute)	Minimum Separation Distance From Public Water Supply Well to Liquid Fueled Generator, Fuel Lines and Fuel Tanks (in feet)
Less than 10	75
10-50	150
Greater than 50	200

- All fuel tanks shall be located above ground and provided with a containment area capable of containing at least 110% of the volume of the fuel tank.

C. Obtaining Price Quotes from Contractors

The DPH Drinking Water Section (DWS) is authorizing DWSRF generator applicants to utilize a non-competitive negotiation procurement method for selecting contractors to complete the work associated with their generator system project as long as the total project cost is less than $100,000. Municipalities may utilize their existing open competitive bidding procedures if necessary to secure their contractors. All generator projects that exceed $100,000 must follow DWSRF base program procurement procedures for open competitive bidding.

If you will be using DWSRF funding **only to purchase materials** for your generator system then a minimum of 3 price quotes must be obtained for those materials from 3 different retailers or wholesalers licensed and authorized to sell the materials in Connecticut.

If you will be using DWSRF funding **to purchase materials and install** all or portions of your generator system then a minimum of 3 price quotes must be obtained from 3 different contractors that specialize in the installation of generator systems and licensed to conduct business in Connecticut.

A licensed electrical engineering consultant will be provided by DPH to evaluate the power requirements for your water system facility and to assist PWSs in completing the DPH Authorization to Commence Work Request Form. This service will be paid for by the DPH at no cost to the PWS. Applicants have the option of utilizing their own consultant or engineering staff for this service.

If the PWS would prefer to use their existing propane contractor rather than obtaining 3 separate price quotes for the propane equipment installation associated with their generator system project, then the PWS must justify (in writing) on how their current contract was procured and verify that the contractor will provide priority service during emergencies.

The DPH will authorize a contract for the lowest, responsible bidder to be secured by the applicant unless there are mitigating circumstances that warrant the DPH to authorize a higher priced contractor to perform the work. Adequate justification must be provided to the DPH if an applicant desires to utilize a contractor that did not submit the lowest price quote. The DPH will review such justifications and render appropriate decisions on a case-by-case basis.

Funding from this program cannot be used for the cost of fuel for the generator system. The cost of fuel is the responsibility of the PWS.

D. Requesting DPH Authorization to Secure your Contractor and Commence Work:

After 3 price quotes have been obtained from the appropriate parties described in Section 1.C., all DWSRF applicants must complete the DPH Authorization to Commence Work Request Form. This Form must be submitted it to the DWS with any and all relevant materials requested on the Form, including the 3 price quotes of the equivalent generator, components & services that were obtained. If the information that is provided to DPH with this Form satisfies DWSRF requirements, then the DPH will issue written authorization for you to secure your contractor and commence the work associated with your project. This authorization does not relieve applicants from obtaining any other necessary federal, state or local permits or authorizations that may be required for your project.

In order to remain eligible for funding from DWSRF, the DPH must review the completed DPH Authorization to Commence Work Request Form and issue authorization prior to you signing any contract with your contractor.

E. Permitting Requirements

It is the responsibility of the public water system to obtain all necessary federal, state and local permits that may be required for their generator system project.

If the DWSRF will be providing funding for the installation of your generator system then a copy of the local building permit that has been issued for your generator system must be submitted to the DWS before your final DWSRF payment is made.

Pursuant to CGS Section 25-32, no water company shall change the use of any water company lands without permission of the Commissioner of Public Health. The commissioner shall not grant a permit for a change in use of class I land unless the applicant demonstrates that such change will not have a significant adverse impact upon the present and future purity and adequacy of the public drinking water supply. By attesting to the conditions described within the completed DPH Authorization to Commence Work Request Form, you provide assurance that the purity and adequacy of your water supply will not be adversely impacted as a result of this project. **This attestation will serve as your permit.**

For your convenience the DPH is also providing guidance entitled CT DEEP Permitting Air Emissions from New Emergency Engines for a potential emissions permit that may be required from the Department of Energy and Environmental Protection (DEEP) for your generator system. You should discuss these requirements with your contractor. If you have any questions regarding these requirements you should contact the DEEP at (860) 424-4152.

F. Financial Assistance Agreement with the DPH

Under this program, the total project costs will be provided through a financing agreement with the State of Connecticut. Under the financing agreement, you will be provided a low- interest loan, a portion of which you will not be required to repay to the State. Of the total project costs, this program will subsidize up to 45% of the cost for a new generator system (not to exceed a total of $45,000) and up to 25% of the cost for replacement generator systems (not to exceed a total of $25,000). The remaining percentage will be provided in the form of a long-term low interest DWSRF loan.

As discussed above, the DWS will review your DPH Authorization to Commence Work Request Form and issue a written authorization for you to secure your contractor and commence work on your project. Once authorized, the term of your loan (in years) will be determined based on the expected useful life of your generator system (typically 10 years or 20 years if your financing agreement will include the cost of a generator). **Interest rates will also be determined at that time and will not exceed one-half of the current market rate.**

An "original" resolution adopted by the PWS must be submitted in order to execute the final loan agreement. The resolution should contain: a brief description of the project, a total dollar amount that the board/committee approved for the generator project, date of approval and who has the authority to sign the loan documents. In the case of a municipality, the resolution must be certified and sealed by the Town/City Clerk; and in the case of a private entity, a notarized authorization must be evidenced by the appropriate parties. The resolution must contain a live signature/stamp or embossed seal. An electronic copy (scan or fax) of a resolution may be submitted temporarily, but the original must be received in order to finalize the loan agreement.

A copy of the most recent tax return shall be submitted from the last year (IRS Form 990 for non-profits) or annual financial statements showing account balances for the PWS must also be submitted.

The DWSRF financing agreement will include a reimbursement loan, in that, recipients will be required to submit a payment request to the DPH as bills from the contractor are incurred. Information on how to submit a payment request to the DPH will be provided to all recipients after they receive written DPH authorization to secure their contractor and commence work on their generator system project.

The DPH will review all payment requests. Once approved, the DPH will authorize the Office of the State Treasurer (OTT) to make payment to the recipient using the recipient's bank account registered with the State's Automated Clearing House (ACH) system through the Office of the State Comptroller (OSC) Office. Information on Automated Clearing House method of payment processing will be sent to you with the written DPH authorization to secure a contractor. The recipient is responsible for making all payment to the contractor after the funds have been deposited. **Do not send any bank account information to the DPH.**

The DPH will send your financial assistance agreement to your PWS representative for signature. After being signed, the agreement must be returned to the DPH for signature by the State. All DWSRF recipients will be responsible for providing their bank account information to the OSC and must do so after returning the signed financial assistance agreement. Contact Sharon Dixon-Peay of the OTT at (860) 702-3134 for more information.

After the final payment has been processed for your generator system project, DPH and OTT will determine the total amount of your loan. You will be contacted by the OTT for preparation of the final closing documentation including the final note and a repayment schedule.

G. Data Universal Numbering System (DUNS) Information

What is a DUNS number? DUNS stands for data universal numbering system, the number is a unique nine-digit identifier that's become the industry standard for business listings worldwide.

Why do I need one? The number, which is provided and maintained by Dun & Bradstreet, is required by the federal Office of Management and Budget (OMB) which has determined that there is a need for improved statistical reporting of federal grants. OMB has adopted the use of the DUNS number as a way to identify organizations that receive grant awards and to track how federal grant money is dispersed. **Every DWSRF funding recipient must either have or obtain a DUNS number.**

What does it cost? There is ***No*** fee; getting a DUNS number is easy. Here's how you can get a DUNS number:

How do I get one or verify that I have one?

1. Before you call D&B or visit their website to apply for a DUNS number, please have the following information on hand listed below.

    - Organization name (Legal name)
    - Other name by which your organization is commonly recognized (if different than above)
    - Physical address, and mailing address (if different)
    - Headquarters name and address (if applicable)
    - Local telephone number
    - Contact name (CEO/organization owner)
    - Legal structure of the organization, year started, and number of employees
    - Primary line of business (SIC Code) (Standard Industrial Classification)
    - Is this a home-based business?

2. First, make sure you don't already have one. Call D&B Government Customer Response Center toll-free at 1-866-705-5711, or visit the website (address below). A representative will tell you if you need to apply for a new number.
    A. If you ***have*** a DUNS number, please submit that information to DPH.
    B. If you ***do not have*** a DUNS number follow the directions below.

You may choose from the following options to apply for your DUNS number.

3. Applying by internet, please click on the follow link:
   http://fedgov.dnb.com/webform/displayHomePage.do

4. Applying by telephone, please call D&B toll-free at 1-866-705-5711.

Office of Management and Budget (White House) DUNS Information
http://www.whitehouse.gov/sites/default/files/omb/grants/duns_num_guide.pdf

H. DPH Site Visits

The DPH DWS may schedule site visits to your generator system project site before, during or upon completion of your project, as necessary. DWS engineers will schedule these site visits in advance whenever possible so that applicants have time to prepare for them.

I. Project Completion Certifications

The applicant is responsible for submitting a local permit from the building official and the following certification once their generator system installation has been completed: Certification of Completed Emergency Power Generator System Installation

SECTION 2: RECOMMENDATIONS FOR YOUR GENERATOR SYSTEM

A. Generator Selection

Permanent standby generators fueled by natural gas or propane with automatic transfer switches are recommended by the DPH for PWS facilities that need emergency back-up power. Some of the significant advantages that these systems offer over portable gasoline generators with manual transfer switches include:

- Permanent standby generator are typically provided with enclosures that are weather resistant, designed to be permanently mounted in an outdoor location and can be bolted to a prefabricated concrete pad making them less susceptible to theft, vandalism, and inclement weather.
- Automatic transfer switches automatically start your generator and transfer power from normal utility power to your generator system when you experience a loss of normal utility power. This ensures that your water customers never experience a loss of water service when normal utility power goes out.
- Many standby generators with automatic transfer switches will self-test periodically to allow the generator system to routinely turn on and operate your water system facility under normal load conditions for a short duration of time and then turn off and transfer power back to the normal utility grid. This significantly reduces the cost of having operators periodically test the generator system under load conditions to ensure it will operate when you need it to.
- Natural gas is the best choice of fuel for your generator if you have natural gas service available to your water system facility. This ensures a continuous supply of fuel for your generator system during a prolonged power outage without the need to arrange for fuel deliveries.

- Propane is another good fuel source if you do not have natural gas service available. Propane does not present a contamination threat to groundwater like gasoline or diesel fuel, thus there are no required separation distances from propane tanks to groundwater sources. Propane has a significantly longer shelf life than diesel or gasoline and can be stored for long periods of time without deterioration.

B. Generator Fuel Storage

It is recommended that emergency power generator systems have a sufficient supply of fuel storage so they can operate your water system facility for seven (7) consecutive days without normal power from your electric utility company. It may be difficult to deliver fuel after a large storm as many fuel stations or fuel delivery companies may also be without power and unable to conduct business. Downed trees or power lines may also make it difficult or impossible for fuel to be delivered to your generator system for an extended period of time.

If you have a liquid fueled generator (gasoline or diesel), you should record the age of all fuel that is stored and use additives as recommended by the manufacturer of your generator to extend the useful life of these fuels.

Once the useful life of the fuel has been exceeded, all fuel tanks should be emptied, the old fuel should be properly disposed of, and new fuel should be added to the tanks. It is extremely important that a reliable supply of fuel is readily available for your generator system when a power outage occurs.

C. Generator Maintenance and Record Keeping

Routine maintenance should be performed on your generator as recommended by the manufacturer. Records of hours of generator operation should be maintained and readily available with all other records so that routine maintenance can be scheduled. All maintenance activities should be recorded in maintenance log that is kept with the PWS records.

The generator should be routinely tested bi-weekly to determine its ability to operate the water system facility that it is providing emergency power to. For portable generators, the test should include connecting the portable generator to the system. All testing should be made under electrical loads equivalent to the load requirements for the water system facility under normal start-up and operating conditions. Records of the test results including the generator's ability to provide the water system facility with sufficient power to supply maximum starting power and running demands of the facility should be maintained.

D. Emergency Contingency and Response Plan

All public water systems should prepare an emergency contingency and response plan that outlines preparations and an appropriate reaction to any disruption of the supply of water to the customers of the system. This plan should address restoration of power and service and maintenance of an adequate and safe water supply to the customers. as well as address the need to notify the system's customers and local emergency management officials of the status of the water system prior to, during, and following an event during which there is a disruption of the supply of water to customers due to a loss of power. In addition, the plan should be kept up to date and on file at the public water system.

The DWS has developed a Security and Emergency Response Guide to assist public water systems in preparing emergency contingency and response plans which is available on the DWS website at the following link:

http://www.ct.gov/dph/lib/dph/drinking_water/pdf/Public_Drinking_Water_Security_Emergency_Response_Guide.pdf

E. Security

Generators, particularly portable generators, are very susceptible to theft during prolonged power outages if they are not located in areas that are continuously monitored. Careful planning should be done to ensure appropriate security measures are in place to prevent or significantly reduce the chance that your generator will be stolen, damaged or vandalized.

F. Safety

NEVER use a generator inside pump houses, homes, garages, crawlspaces, sheds, or similar areas, even when using fans or opening doors and windows for ventilation. Deadly levels of carbon monoxide can quickly build up in these areas and can linger for hours, even after the generator has shut off.

Location of permanent or portable generators is critical to prevent the buildup of carbon monoxide. They should be located outside any existing structures and not near any air intakes for existing structures. Make sure the exhaust from the generators is directed away from existing structures.

Portable generators are of special concern since workers may have discretion about placement. DPH suggests that such generators be located 20 feet away from any structure that may have workers inside for any length of time.

Manufacturer's safety information for your generator system should be read, understood, followed and readily available to everyone who may be operating the system.

G. Other Useful Links for Generator System Information

State of Connecticut Department of Public Health
http://www.ct.gov/dph/publicdrinkingwater

State of Connecticut Department of Energy and Environmental Protection
http://www.ct.gov/dep/cwp/view.asp?a=2684&Q=322184&depNav_GID=1619&depNav=|

State of Connecticut Department of Construction Services
http://www.ct.gov/dcs/cwp/view.asp?a=4218&q=294226&dcsNav=|&dpsNav=|

United States Environmental Protection Agency Region 1 New England
http://www.epa.gov/region1/eco/drinkwater/pdfs/WaterWastewaterSystemGeneratorPreparedness.pdf
http://www.epa.gov/region1/eco/drinkwater/pdfs/TopTenFlu.pdf

State of Connecticut Office of the State Comptroller
http://www.osc.ct.gov